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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,557	04/06/2001	Michael Mitzenmacher	H-102	1016

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EXAMINER
PHAM, THOMAS K

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/827,557	MITZENMACHER, MICHAEL
	Examiner	Art Unit
	Thomas K Pham	2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *13 December 2004*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *1-11* is/are allowed.

6) ☒ Claim(s) *12-17* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Response to Amendment

1.   This action is in response to request for re-consideration filed on 12/13/2004.

2.   Claims 1-11 are allowed. However, claims 12-17 have been considered but they are not

persuasive.

Quotations of U.S. Code Title 35

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim Rejections - 35 USC § 103

5.   Claims 12-13 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Summary Cache: a Scalable Wide-Area Web Cache Sharing Protocol," Proceedings of SIGCOMM' 98, (1998: pp 254-265) by ("Fan") in view of U.S. Patent No. 4,882,754 ("Weaver").

Regarding claims 12, 16 and 17

Fan teaches a distributed, bloom filter Web server providing reduced probabilities of false positives, comprising: a plurality of cache servers each having a cache memory and a cache processor coupled to the memory that is operative to represent Web objects stored in the cache server's cache memory as a Bloom filter data array having a preselected number of hash functions and a preselected array size which have been chosen to minimize the rate of false positives (page 259 col. 2 second paragraph, "The graph in Figure 3 shows ... by allocating more memory"), and to broadcast the compressed Bloom filter data structure to at least one other node whenever the contents of its cache memory has changed (page 263 col. 2 second paragraph, "We modify Squid 1.1.14 to ... when it recovers"). Fan does not teach compressing the data to a preselected transmission compression size. However, Weaver teaches a data compression system including a linear digital compression filter to compress data to optimizing a transmission size in response to a measure of the transmitter buffer fullness (col. 7 lines 22-41, "A flow diagram showing ... transmission of each block of signals") for the purpose preventing overflowing the transmitter buffer. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the data compression system of Weaver with the Bloom filter of Fan because it would provide for the purpose of preventing overflowing the transmitter

buffer.

Regarding claim 13

Fan teaches the nodes are Web proxy servers (abstract).

6.   Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan in view of Weaver and further in view of U.S. Patent No. 6,052,120 ("Nashi").

Regarding claim 14

Fan and Weaver teach the Bloom filter data array but do not specifically teach the nodes are mobile or stationary agents in a network of mobile nodes, and the Web objects correspond to agent locations. However, Nashi teaches compressing audio data object prior to transmission on a mobile device (col. 4 lines 20-26, "graphical data may be ... to the portable display tablet") for the purpose of preserving the bandwidth available to the short-range transceiver. Therefore, it would have obvious to one of ordinary skill in the art at the time of the invention to incorporate the compression for mobile device of Nashi with the system of Fan and Weaver because it would provide for the purpose of preserving the bandwidth available to the short-range transceiver

Regarding claim 15

Nashi teaches predetermined compression algorithm is arithmetic coding (col. 12 lines 48-65, "A Web browser application ... and host computer system 14").

Allowable Subject Matter

7.   The following is an examiner's statement of reasons for indication of allowable subject

matter:

While Fan ("Summary Cache: a Scalable Wide-Area Web Cache Sharing Protocol")

discloses the sharing of caches among Web proxies to reduce Web traffic and reduce

bottlenecking. Fan is using a Bloom filter data array having a preselected number of hash

functions and a preselected array size which have been chosen to minimize the rate of false

positives and broadcast to its neighboring proxies whenever the contents of its cache memory has

changed.

And Weaver (Patent No. 4,882,754) teaches a signal compression system includes a

linear digital compression filter for compression filtering the sample signal stream to a

preselected transmission size in response to a measure of the transmitter buffer fullness to

preventing overflowing the transmitter buffer.

Neither of these references taken either alone or in combination discloses a method and

device employing Bloom filters having all the claimed features of applicant's instant invention,

specifically including: a preselected array sized which have been choosen to minimized the rate

of false positives for a preselected transmission size when the preselected transmission size

differs from the preselected array size. Also, there is no motivation to combine the Fan reference

with the Weaver reference to meet these limitations.

Response to Arguments

In the remark the applicant argues that cited reference fails to disclose:

I) "the selection of the number of hash functions and the data array size to optimize a compression size" as to claims 12, 16 and 17.

In response to applicant's argument,

I) It is noted that Weaver (4,882,754) teaches column 2 lines 15-25 as follow

"   In accordance with the present invention a servo control is provided that increases truncation of the input to the digital compression filter as the fullness of the transmission buffer increases thereby decreasing the average encoder output bit rate below the bit rate of the channel so as to decrease the transmission buffer fullness. <u>As buffer fullness increases an increasing number of least significant bits of the compression filter input words are truncated to further decrease the average encoder output bit rate.</u> Transmitter buffer overflow is thereby substantially eliminated."

Clearly, Weaver optimizes the transmission size by truncating the compression filter input words as the buffer increases in order to prevent overflow of the transmitter buffer. Therefore, the combination of Fan and Weaver teaches the limitations of claims 12, 16 and 17.

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should

be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday to Thursday

from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Patent Examiner

TP

February 16, 2005

Anthony Knight
Supervisory Patent Examiner
Group 3600